

Memo to the Docket

From: Kevin Culligan, Environmental Engineer, USEPA

Date: March 27, 2002

Subject: Analysis to determine the extent to which historical heat input data is indicative of future heat input.

Purpose: The purpose of this analysis was to determine the extent to which historical heat input data is indicative of future heat input.

Background: A number of commenters to the SIP Call NODA suggested that historical heat input data could be used to project future heat input data. A number of different suggestions were made as to what historical data should be used.

Procedure: EPA used the annual 1960 to 2000 data that had been placed in the docket for the SIP Call (docket # XV-C-05) to project future heat input. EPA used two methodologies to project future heat input. In method 1, EPA determined the growth in heat input between year X (e.g. 1960) and year X + 6 (e.g. 1966). This growth factor was then applied to the actual heat input in year X+6 and projecting it to year X+12 (e.g. 1972). In method 2, EPA projected a value to year X+12, using a best linear fit of the data for the years X through X+6. The trend function in Excel was used to do the linear curve fitting and projecting.

Results:

Method 1

Of the 22 States examined, there seemed to be a significant correlation between historical heat input and future heat input in only one State, Indiana, which had an R² value of 0.81. No other State had an R² value above 0.6. The R² values for the States of particular concern ranged from 0.01 to 0.46 and are summarized below.

Method 2

Of the 22 States examined, Indiana once again had the highest R² value at 0.84. Two other States had R² values above 0.6, Kentucky (0.67) and Alabama (0.63). The R² values for the States of particular concern ranged from 0.03 to 0.63 and are summarized below.

State	R squared value using actual growth between 1995 and 2001 (Method 1)	R squared value using trend function for growth between 1995 and 2001 (Method 2)
Alabama	0.46	0.63
Georgia	0.20	0.42

Illinois	0.09	0.06
Michigan	0.11	0.06
Missouri	0.06	0.20
Virginia	0.05	0.03
West Virginia	0.03	0.26